

REMARKS

Suzuki discloses a liquid detecting device comprising at least two parallel conductors separated by continuously porous polytetrafluoroethylene (PTFE) containing an electro-conductive material. Suzuki teaches that when liquid comes into contact with and enters the continuously porous filled PTFE containing the electro-conductive material, that the electrical resistance of the material is remarkably increased (col. 5, lines 1-7). Suzuki also teaches that since the liquid detecting device is made mainly of PTFE which is inherently repellent to water, it is little affected by water and moisture (col. 5, lines 44-48).

Gott discloses a tape carrying flat, spaced conductors. The conductors are exposed and uninsulated. Furthermore, the conductors are always found in parallel pairs. Gott stresses that the flat nature of the conductors is critical in as much as small droplets may be impeded from migrating across the parallel conductors (col. 3, line 48 – col. 4, line 5).

In contradistinction, claim 1, as amended, clarifies the invention as having at least one electrical conductor characterized by an electrically insulative, porous sheath effective to provide electrical isolation of said at least one electrical conductor from the other electrical conductor and further having circuitry effective to measure a resistance of the combination of the pair of electrical conductors and an electrical short therebetween caused by local conductivity through the porous sheath at a location whereat said liquid leak penetrates said sheath.

The United States Court of Appeals for the Federal Circuit (CAFC) has stated in determining the propriety of a rejection under 35 U.S.C. § 103, it is well settled that the obviousness of an invention cannot be established by combining the teachings of the prior art absent some teaching, suggestion or incentive supporting the combination. See In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 U.S.P.Q. 657 (Fed. Cir. 1985); ACS Hospital Systems, Inc. v. Montefiore

Hospital, 732 F.2d 1572, 221 U.S.P.Q. 929 (Fed. Cir. 1984). The law followed by our court of review and the Board of Patent Appeals and Interferences is that “[a] prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.” In re Rinehart, 531 F.2d 1048, 1051, 189 U.S.P.Q. 143, 147 (C.C.P.A. 1976). See also In re Lalu, 747 F.2d 703, 705, 223 U.S.P.Q. 1257, 1258 (Fed. Cir. 1984) (“In determining whether a case of prima facie obviousness exists, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification.”) The determination under § 103 is whether the claimed invention as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made. Kahn v. General Motors Corp., 135 F.3d 1472, 45 USPQ2d 1608 (Fed. Cir. 1998) See In re O’Farrell 853 F.2d 894, 903-904, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988) (“Obviousness may not be established using hindsight.”) See W.L. Gore & Assocs., Inc. v. Garlock, Inc. 721 F.2d 1540, 1550-51, 220 USPQ 303, 311 (Fed. Cir. 1983) (“In determining obviousness, the invention must be considered as a whole and the claims must be considered in their entirety.”)

With respect to the rejection of independent claims 1 and 13, none of the references cited, either alone or in combination with each other, teach or suggest the claimed invention. The proposed combination fails to yield Applicants’ invention in as much as Suzuki requires an electrically conductive sheath which resistance increases with liquid contact. Applicants’ invention requires electrically insulative sheathing and low resistance electrical short therethrough in the event of a liquid leak penetration. Furthermore, Suzuki specifically teaches its inherent repulsion to water and hence inability to absorb water diluted liquids such as those outlined in the Applicants’ specification thereby teaching away from the present invention. Similarly, Gott nowhere suggests, and in fact teaches away from, utilizing a sheathed conductor

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claimed

since such would add significantly to the thickness of the conductor, is not consistent with the "thin as possible" objectives (exemplary thickness of not in excess of 20 mils) and would impede flow across the conductors.

The references fail to provide the necessary motivation of one skilled in the art to combine the individual teachings to arrive at the Applicant's invention. The references, if combinable, fail to yield Applicants' invention. Therefore, it is respectfully submitted that a prima facie case of obviousness has not been presented and that independent claims 1 and 13 are allowable over the rejections under 35 U.S.C. § 103(a). The remaining dependent claims 2-12 and 14-21, all adding additional limitations to one of the base claims 1 or 13 are allowable for the same reasons.

Based on the above, it is respectfully submitted that the claims are in a condition for allowance, which allowance is solicited.

Respectfully submitted,

By: 

Randy W. Tung
Reg. No. 31,311

APPENDIX AVERSION OF THE CLAIMS WITH MARKINGS TO SHOW THE CHANGES

Please amend claim 1:

1. (AMENDED) An apparatus for detecting a liquid leak from a fluid vessel comprising:

a pair of electrical conductors located in relative proximity to said fluid vessel, said pair of electrical conductors comprising at least one ~~insulated~~ electrical conductor characterized by an electrically insulative, porous sheath effective to provide electrical isolation of said at least one electrical conductor from the other electrical conductor;

circuitry coupled to said electrical conductors effective to measure a resistance of the combination of the pair of electrical conductors and an electrical short therebetween caused by ~~said liquid leak~~ local conductivity through the porous sheath at a location whereat said liquid leak penetrates said sheath, whereby the resistance indicates the existence of a leak and the relative location of the leak along said at least one ~~insulated~~ electrical conductor.

10. (AMENDED) The apparatus as claimed in claim ~~one~~ 1 wherein the said at least one insulated conductor comprises a chemically treated insulator which changes color when contacted by liquid, whereby leak existence and location may be discerned visually.

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MAR 26 2003
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